

Amendments to the Claims:

1. (Currently Amended) A hydrogenerator plant for connection to a high voltage transmission or distribution network comprising: at least one rotating electric machine for high voltage coupled to a turbine via shaft means, said electric machine comprising at least one winding formed of a conductor including a plurality of insulated conductive elements, and at least one insulated-uninsulated conductive element; a covering surrounding the conductor including an inner layer having semiconducting properties, a solid insulating layer surrounding the inner layer and an outer layer having semiconducting properties surrounding the insulating layer, said inner layer being in contact with the uninsulated element such that the inner layer has the same potential as the conductor, and said at least one winding being directly connectable to the transmission or distribution network, the voltages being across a range of transmission or distribution voltages.

2. (Previously Presented) The plant as claimed in claim 1 wherein the at least two semiconducting layers each form essentially an equipotential surface, and wherein at least one of the layers has substantially the same coefficient of thermal expansion as the solid insulation.

3. (Previously Presented) The plant as claimed in claim 1, wherein the generator comprises a magnetic circuit with a magnetic core.

4. (Previously Presented) The plant as claimed in claim 3, wherein the electric machine includes a core comprising laminated sheet of at least one of cast iron, powder-based iron, and rough forge iron.

5. (Previously Presented) The plant as claimed in claim 1 wherein the winding comprises a cable.

6. (Previously Presented) The plant as claimed in claim 1, wherein the inner semiconducting layer is at substantially the same potential as the conductors.

7. (Previously Presented) The plant as claimed in claim 1, wherein the outer semiconducting layer forms an equipotential surface surrounding the conductors.

8. (Previously Presented) The plant as claimed in claim 7, wherein said outer semiconducting layer is connected to a predefined potential.

9. (Previously Presented) The plant as claimed in claim 8, wherein the predefined potential is earth potential.

10. (Previously Presented) The plant as claimed in claim 5, wherein at least two of said layers have substantially the same coefficient of thermal expansion.

11. (Cancelled)

12. (Cancelled)

13. (Previously Presented) The plant as claimed in claim 1, wherein the cable also comprises a metal screen and a sheath.

14. (Previously Presented) The plant as claimed in claim 1 including a stator cooled at earth potential by means of a fluid.

15. (Currently Amended) The plant as claimed in claim 1 wherein the outer semiconducting layer is connected to earth potential.

16. (Previously Presented) The plant as claimed in claim 1, wherein the electric machine includes a rotor inductively connected to the high voltage.

17. (Previously Presented) The plant as claimed in claim 16, wherein the rotor is cylindrical in shape, has salient poles and also has a constant air gap.

18. (Previously Presented) The plant as claimed in claim 17, wherein the electric machine includes a stator having a stator winding formed as at least one of an integral slot winding, and a fractional slot winding.

19. (Cancelled)

20. (Previously Presented) The plant as claimed in claim 18, wherein the stator has a pole pitch and the winding is distributed and includes a coil having a coil span different from the pole pitch.

21. (Previously Presented) A plant as claimed in claim 8 wherein the coils in the stator are distributed and have a coil span different from the pole pitch.

22. (Previously Presented) The plant as claimed in claim 1, wherein the cable has a conductor area of about between 40 and 3000 mm² and an outer cable diameter of about between 20 and 250 mm.

23. (Previously Presented) The plant as claimed in claim 22, wherein the cable is cooled by gas or liquid inside current-carrying conductors.

24. (Previously Presented) The plant as claimed in claim 1, wherein the electric machine is designed for high voltage and arranged to supply the out-going electric network directly without any intermediate connection of a transformer.

25. (Previously Presented) The plant as claimed in claim 1, comprising a plurality of electric machines, each of which lacks an individual step-up transformer, but which, via a system transformer common to the electric machines, is connected to the transmission or distribution network.

26. (Previously Presented) The plant as claimed in claim 24, wherein at least one electric machine is earthed via an impedance.

27. (Previously Presented) The plant as claimed in claim 24, wherein electric machine is directly earthed.

28. --(Previously Presented)--The plant as claimed in claim 24, wherein said plant is operative as at least one of a pump and turbine station, the electric machine being arranged to function as at least one of a motor driven directly from the transmission or distribution network and as a generator, generating voltage for the transmission or distribution network.

29. (Previously Presented) The plant as claimed claim 24, wherein the electric machine is arranged to generate power to various voltage levels.

30. (Previously Presented) The plant as claimed in claim 29, wherein at least one electric machine includes a separate auxiliary winding for producing auxiliary power at one of said voltage levels.

31. (Previously Presented) The plant as claimed in claim 1, including a common earth system.

32. (Previously Presented) The plant as claimed in claim 1, wherein the winding of the electric machine is operable for self-regulating field control and lacks auxiliary means for control of the field.

33. (Previously Presented) The plant as claimed in claim 1, wherein the electric machine includes a stator comprising a plurality of stator limitations having openings for receiving the winding, said laminations being assembled into a stack with the openings aligned, and the winding comprises a cable threaded into the openings or the stacking laminations of the stator at the manufacturing facility or at the generation plant site.

34. (Currently Amended) An electric generator for a high voltage included in a hydro-generator plant in which the generator is coupled to a turbine via shaft means, said generator comprising at least one winding including a conductor, a solid insulation covering including an inner layer having semiconducting properties; a solid insulating layer surrounding the inner layer and an outer layer having semiconducting properties surrounding the insulation layer; said conductor formed of a plurality of conductive elements including at least one uninsulated element in contact with the inner layer and a plurality of insulated elements; and wherein each winding is directly connectable to a high voltage transmission or distribution network, and the inner layer forms an equipotential surface about the conductor.

35. (Cancelled)

36. (Cancelled)

37. (Currently Amended) A hydrogenerator plant including a rotating high voltage electric machine comprising a stator; a rotor and a winding, wherein said winding comprises a cable including a current-carrying conductor and a magnetically permeable, electric field confining cover surrounding the conductor, including an inner layer having semiconducting properties, a solid insulation surrounding the inner layer and an outer layer having semiconducting properties surrounding the solid insulation, said cable forming at least one uninterrupted turn in the corresponding winding of said machine, and wherein the conductor includes a plurality of insulated conductive strands and at least one uninsulated electrically conductive strand in contact with the inner layer, such that said conductive conductor and insulating inner layer at the same potential.

38. (Previously Presented) The hydrogenerator plant of claim 37, wherein the outer layer has a conductivity sufficient to establish an equipotential surface around the conductor.

39. (Cancelled)

40. (Cancelled)

41. (Original) The hydrogenerator plant of claim 37, wherein the cover is formed of a plurality of integrally bonded layers, and wherein said plurality of layers are substantially void free.

42. (Cancelled)

43. (Cancelled)

44. (Cancelled)

45. (Cancelled)

46. (Cancelled)

47. (Cancelled)

48. (Cancelled)

49. (Cancelled)

50. (Currently Amended) A hydrogenerator plant for direct connection to a high voltage transmission or distribution network comprising: at least one rotating electric machine for high voltage coupled to a turbine via shaft means, said electric machine including at least one winding comprising a conductor and a magnetically permeable, electric field confining insulating covering surrounding the conductor including an inner layer having semiconducting properties, a solid insulation surrounding the inner layer and an outer layer having semiconducting properties surrounding the insulating layer, said conductor including at least one of a plurality of insulated conductive elements, and at least one insulated-uninsulated conductive element being in contact with the inner layer such that said conductor and inner layer are at the same potential; and said at least one winding being directly connectable to the transmission or distribution network.